



***Waterford Homeowners Association  
Edenderry Drive Tree Removal and Replacement Implementation Plan***

February 2019

Edenderry Drive is a public right-of-way in Fort Mitchell that is the primary entrance to and thoroughfare in the Waterford Homeowners Association neighborhood. It is currently lined with 61 white ash and Callery pear trees (See Appendix A and B). These trees are declining and dying due to the effects of emerald ash borer and previous storm damage. Without proactive intervention, the neighborhood risks losing all of these trees in the next three to five years, and subsequently will also lose the aesthetic and environmental benefits that the street trees provide.

The Waterford Homeowners Association (WHOA) has therefore decided to be proactive and systematically remove and replace the street trees over the next three years. This project is in coordination and cooperation with the City and the Fort Mitchell Tree Board.



## PROJECT GOALS

The tree removal and replacement project has several goals that are consistent with the City's overall urban forest management program's goals:

1. Follow the intent of Dixie Highway Trolley Line Master Tree Planting Plan to create a safe and sustainable public urban forest in the City of Fort Mitchell.
2. Adhere to the tree planting guidelines presented in the Plan so that replacement trees are properly installed and cared for according to current industry standards.
3. Select replacement tree species from a palette of more desirable species that will require less maintenance and provide multiple benefits, specifically a shady, overarching canopy for Edenderry Drive, stormwater mitigation, wildlife habitat, and aesthetic beauty that will compliment the quality of the neighborhood.
4. Create a public-private partnership so that the resources of both the WHOA and the City are used efficiently and effectively.

## PROJECT APPROACH

Similar to the Dixie Highway tree removal and replacement project, the Edenderry Drive project will take a phased approach over a period of three years. Unlike the Dixie Highway project however, this project will be a public-private partnership that will maximize resources for both the City and the WHOA.

WHOA is providing the majority of the funding needed for the removal of the street trees and stumps and replacement tree planting during the entire project. For the first phase, and as available in the future, the Tree Board is committing some public funding for replacement street tree planting. This direct financial support will also be supplemented with tree removal work by city crews (when possible given other city work commitments).

With the City's assistance, the implementation of this plan will be performed at the same time as the Dixie tree removal and replacement project so that the City's selected vendor could possibly do both projects consecutively and both organizations might get better pricing and more consistent work.

In the end, the monetary and in-kind investments in this project made by the City and WHOA will be exceeded by lower tree maintenance costs and the higher combined annual value of the community benefits produced by the new trees.

### About the Development Process for this Plan

This implementation plan was developed by Certified Arborists/Municipal Specialists with input and information provided by Waterford Homeowners Association representatives, the Fort Mitchell Tree Board, and city staff. Work included completion of four primary tasks:

*Data Analysis / Field Work.* The August 31, 2018 Edenderry Drive tree inventory and assessment report data was referenced, and multiple field inspections were performed to determine priority work, select preferred replacement tree species, and to identify the three phases.

*Phase Development.* The factors that were considered to determine the three phases included: species and condition of the trees, the adjacent land use, WHOA and City staff input, and guidance from the *Dixie Highway Trolley Line: Tree Removal and Replacement Master Plan*.

*Budgeting.* An estimated budget for tree removal and replacement for each phase was developed using average cost for tree and stump removal (\$300) derived from bid results from the November 2018 RFP issued by the City, and the average local price for planting a 1.5 inch caliper tree (\$300).

*Plan and Map Development.* This plan and maps were created to delineate and detail the three phases of this project

## SPECIES PALETTE

Given the character of the neighborhood and the existing landscaping on private properties, the species palette for replacement trees is composed of stately shade trees that will create an arching canopy over the street at maturity. The current street and site conditions will support large canopied trees since there are no sidewalk, overhead utilities, or other restrictive growing constraints.

When mature, the species recommended below will achieve the canopy effect desired, and have proven to be tolerant of urban conditions and are relatively low maintenance. Since the street is on a hill, many planting areas along the pavement tend to collect stormwater and the following species are also tolerant of varying degrees of wet soil conditions.

The recommended large-canopied tree species for replacement planting on Edenderry Drive are:

- **American elm** (*Ulmus americana*) ‘Jefferson,’ ‘New Harmony,’ ‘Prairie Expedition,’ ‘Princeton,’ ‘Valley Forge’ or other approved cultivar
- **Swamp white oak** (*Quercus bicolor*)
- **London plane** (*Platanus x. acerifolia*) ‘Bloodgood,’ ‘Suttneri,’ ‘Liberty’ or other approved cultivar
- **Thornless honeylocust** (*Gleditsia triacanthos enermis*) ‘Halka,’ ‘Moraine,’ ‘Skyline,’ ‘Shademaster’ or other approved cultivar.

The plan also includes planting understory ornamental trees at regular intervals to create even more diversity on the street as well as enhance the aesthetics of the neighborhood with excellent spring flowering and fall color similar to what the ash and pear provided. Therefore, every fifth planting site should be planted with a flowering understory tree such as:

- **Redbud** (*Cercis canadensis*)
- **Serviceberry** (*Amelanchier spp.*)

These species will also thrive in the growing conditions on Edenderry Drive, and can bloom in part shade.

While these six species are the preferred trees for Edenderry Drive, other species may be used if nursery availability is an issue in the future. Any alternative species suggested by landscape contractors should be approved by the Tree Board.

## **DESIGN**

The overall design of the planting plan is to generally repeat a pattern of the 5 preferred species --- elm, oak, London plane, honeylocust, and serviceberry/redbud (See Appendix D for species assignment per location). This pattern will create the diversity, aesthetic, and sustainability qualities desired, and will insure against any one property losing all their street trees to another species-specific invasive, exotic insect pest or disease in the future.

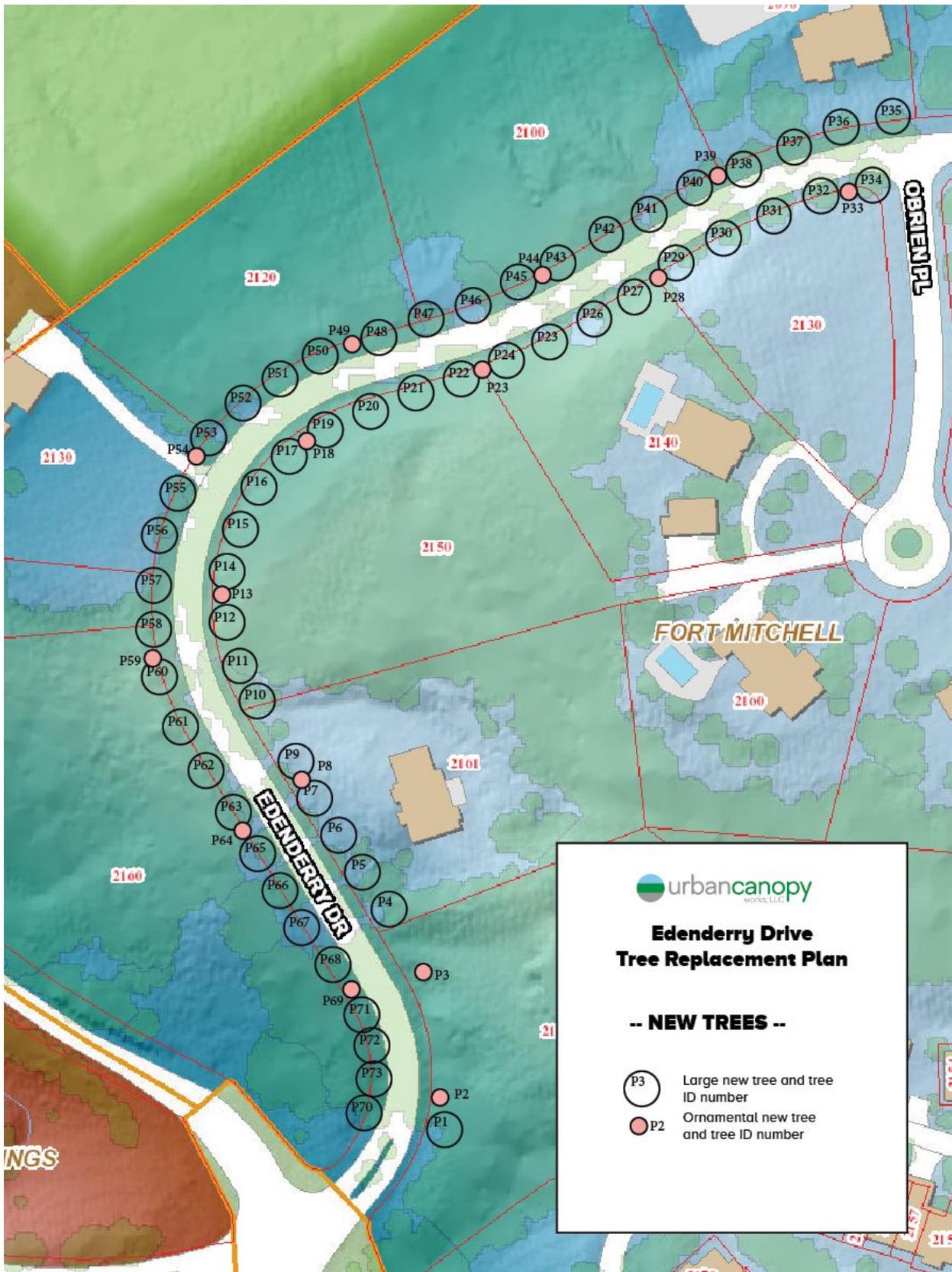
Since trees are not being removed and replaced all at one time, it will be difficult to precisely follow the design pattern. However, as long as each species does not represent more than 25% of the total population of new trees at the end of the three year period, the aesthetic and sustainability goals will be achieved.

In general, the large trees should be planted on 40-foot centers and the small trees 20 feet from the adjacent trees.

## **PHASED APPROACH DETAIL**

The following sections present each phase, the justification for the phase, and an estimated budget. A larger scale overall planting map is found in Appendix C and species assignments by address are in Appendix D.

Please note: This planting plan is a conceptual design; meaning it is not to be used to determine exact planting locations. More precise locations and numbers of trees to be planted in each phase can only be determined in the field after all underground utilities are marked, and are also dependent on the configurations of driveways and other features of lots that are being developed now and in the future.



**Edenderry Drive  
Tree Replacement Plan**

**-- NEW TREES --**

- P3 Large new tree and tree ID number
- P2 Ornamental new tree and tree ID number

## Phase I (RED)

### Goals/Justification:

The first phase was determined by representatives from WHOA and the city. The 15 trees marked for removal were selected because of one of three reasons: they are located at the entrance to the neighborhood; are not directly in front of a developed property; or are in poor condition. Once these 15 trees are removed and replaced, the entrance will be enhanced, neighbors will see that the City and WHOA are committed to replanting, and higher risk trees will be eliminated from the right-of-way. A total of 14 trees will be removed and 16 will be planted.

### Actions:

- Remove tree numbers 16, 22, 29, 30, 31, 32 on the west side, and 33, 34, 39, 40, 42, 45, 48, and 57 on the east side of Edenderry.
- Grind all stumps.
- Plant 12 large trees and 4 small trees as replacements following the Planting Plan as closely as possible given the constraints of working around existing trees, utilities, and developing properties.

### Estimated Budget for WHOA:

**Total** - \$8,700 (if all work is performed by contractors)

**Public/Private Partnership** = \$2,645 (if City removes the 13 trees and contributes \$3,000 to replacement planting, and WHOA removes stumps and supports remaining tree planting)

## Phase II (YELLOW)

### Goals/Justification:

After removing and replacing the trees in Phase I, Phase II will involve tree removal and replacement of 27 trees. The trees removed in Phase II were selected because they are in a declining state, adjacent to undeveloped or developing lots, and are in a contiguous area that will facilitate the proper spacing and design scheme envisioned for the entire street segment. A total of 27 trees will be removed and 33 will be planted.

### Actions:

- Remove tree numbers 1 through 15 on the east side, and 49 through 56 and 58 through 61 on the west side.
- Remove all stumps after removals and include 3 existing stumps
- Plant 27 large trees and 6 small trees as replacements following the Planting Plan as closely as possible given the constraints of working around existing trees, utilities, and developing properties.

**Estimated Budget for WHOA:**

**Total** - \$18,000 (if all work is performed by contractors)

**Public/Private Partnership** = \$11,450 (if City removes approximately 15 trees and again contributes approximately \$3,000 to replacement planting, and WHOA removes the remaining trees and stumps and supports remaining tree planting)

## Phase III (BLUE)

**Goals/Justification:**

Phase III's goal is to remove the remaining trees and complete the tree replacement work. A total of 20 trees will be removed and 24 will be planted.

**Actions:**

- Remove tree numbers 17 through 21, and 23 through 28 on the east side, and 35 through 38, 41, 43, 44, 46, and 47 on the east side of Edenderry.
- Remove all stumps
- Plant 19 large trees and 5 small trees as replacements following the Planting Plan as closely as possible given the constraints of working around existing trees, utilities, and developing properties.

**Estimated Budget for WHOA:**

**Total** - \$13,200 (if all work is performed by contractors)

**Public/Private Partnership** = \$7,000 (if City removes approximately 15 trees and contributes \$3,000 to replacement planting, and WHOA removes stumps and supports remaining tree planting)

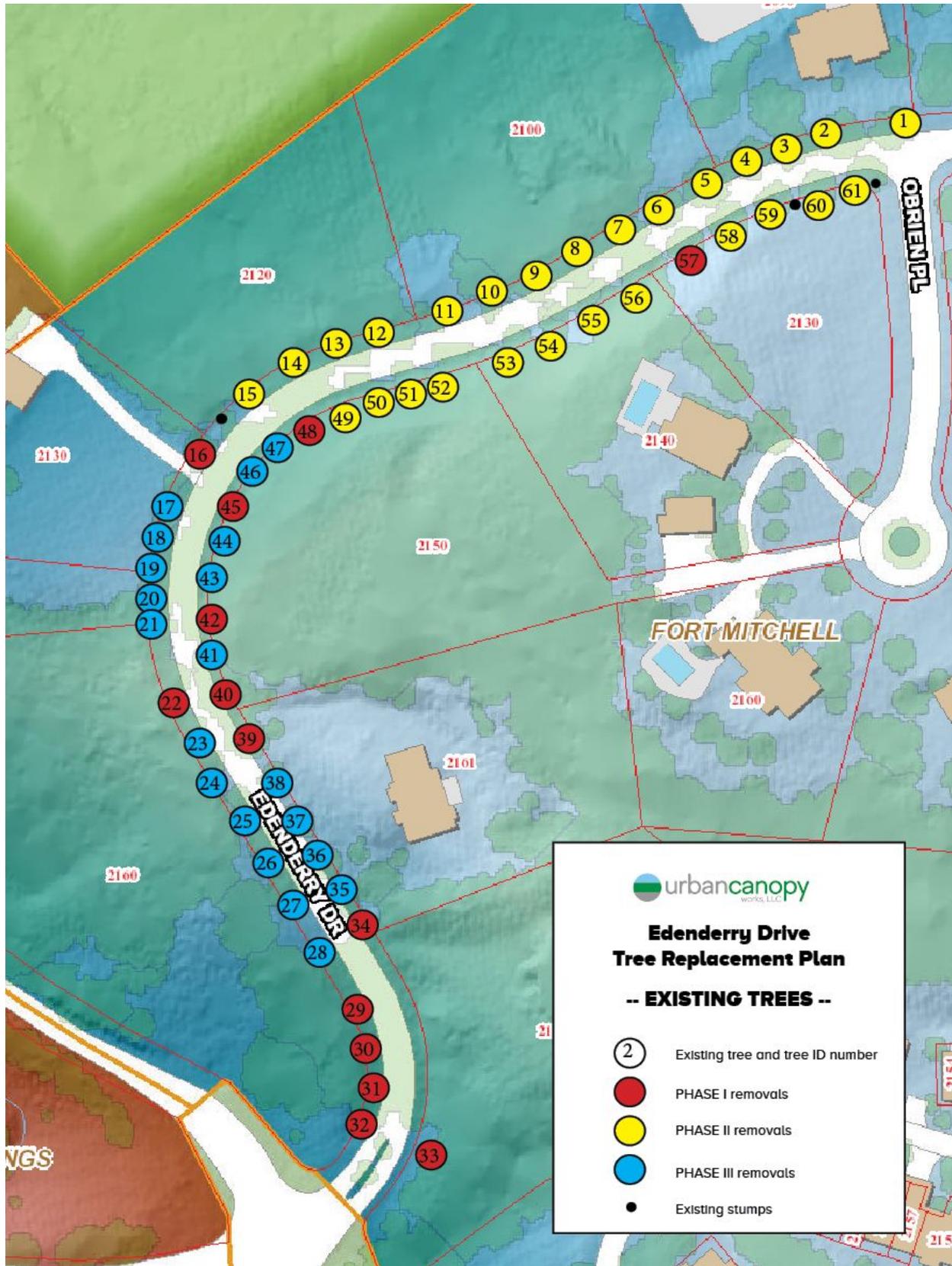
**Notes on Phases.** As this project spans 3 years, these conditions/limitations should be noted:

- The precise number of trees that can be planted in each phase may differ from the estimated number in this plan. The construction of new homes on currently undeveloped lots, presence of underground utilities, and road improvement/repair projects may alter the actual number of trees that can be planted in each phase or in total.
- The municipal funding for tree planting and support for tree removal available for each phase may vary in future years due to unforeseen circumstances, other city projects, obligations, and emergency events.
- Depending on the resources available to WHOA and the City in the next 3 years, the work prescribed for each phase may be reduced or expanded to fit current budgets.

## Notes on Implementation:

- The tree removal and planting for each phase should be performed between the months of October and December. The reasons include: fall is the optimal season for tree planting; tree removal will be less noticeable; and contractual pricing will be lower. However, trees should be removed by the city at any time of the year if they deteriorate to a condition where they are a risk to the street.
- The design and planting guidelines in the *Dixie Highway Trolley Line: Tree Removal and Replacement Master Plan* should be followed and referenced in contractual specifications.
- WHOA, or their agent, is encouraged to diligently interact with the contractor selected for each phase. This includes inspecting/tagging the trees in the nursery or on the truck before they are planted, monitoring the work to insure professional standards are being followed, and requiring appropriate tree maintenance be done during the guarantee period.
- WHOA should perform timely neighborhood outreach before and during the activities for each phase. This could include informing the property owners as to the timing and type of work that is planned, the benefits of the project, and contact information for questions.
- WHOA should refer to and implement the new tree maintenance tasks included in the Appendix of the *Dixie Highway Trolley Line: Tree Removal and Replacement Master Plan* and that are found in Appendix E. This can be accomplished by contractors and/or volunteers under appropriate supervision.
- Evidence of deer was apparent along the street and in the neighborhood, so deer fencing around the new trees is recommended (of a type to be determined by WHOA and the landscape contractor installing the trees).
- For any phase of this project, Urban Canopy Works' Certified Arborists are able to assist the City and WHOA with tree marking for removal, locating and marking planting sites, tree tagging or inspections, contractor monitoring, and guarantee period inspections.

# APPENDIX A: PHASES AND EXISTING TREE AND STUMP MAP

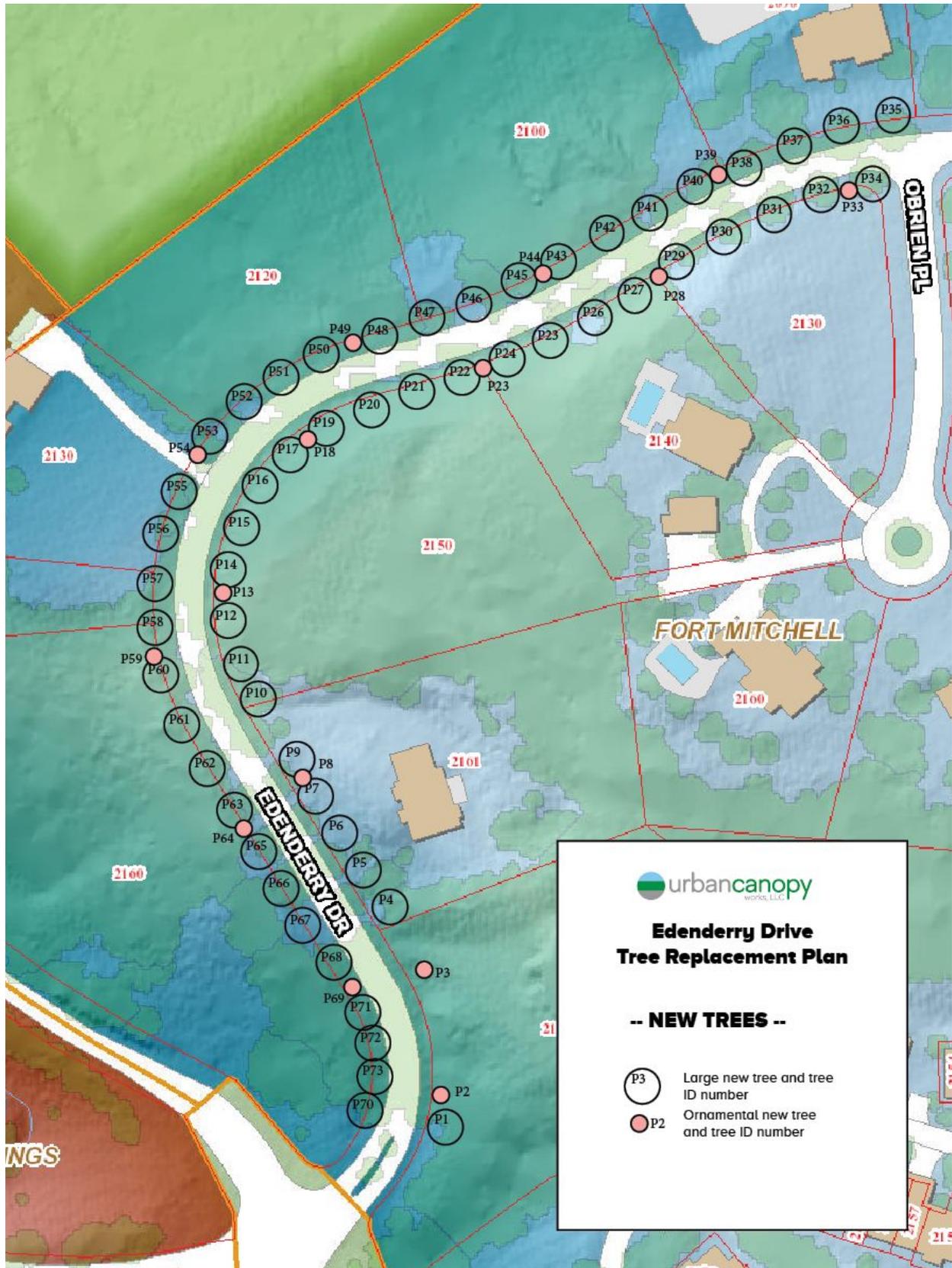


## APPENDIX B: REVISED TREE INVENTORY

<b>Waterford Homeowners Association</b>					
<b>Edenderry Drive Tree Inventory Information - January 2019</b>					
<i>(Bromley-Crescent Springs Road to Obrien Place)</i>					
<b>Tree ID #</b>	<b>Species</b>	<b>Size (dbh)</b>	<b>Location</b>	<b>Tree Condition</b>	<b>Parcel Status</b>
1	Ash	16.2	2090	Good	Developed
2	Ash	18.6	*	Good	
3	Ash	16.1	*	Good	
4	Ash	17.6	*	Good	
5	Ash	17.5	2100	Good	Undeveloped
6	Ash	12.7	*	Good	
7	Ash	15.9	*	Good	
8	Ash	14.6	*	Fair	
9	Ash	14.4	*	Fair	
10	Callery pear	18.3	*	Good	
11	Callery pear	17	*	Good	
12	Callery pear	16.7	2120	Fair	Undeveloped
13	Callery pear	18.5	*	Fair	
14	Ash	15.6	*	Fair	
15	Ash	15.4	*	Fair	
16	Ash	14.6	2130	Poor	Developed
17	Ash	17.7	*	Poor	
18	Ash	16.8	*	Fair	
19	Ash	19	*	Fair	
20	Ash	18.5	2040W	Poor	Undeveloped
21	Ash	18	*	Fair	
22	Ash	17.2	2060	Poor	Undeveloped
23	Ash	16.8	*	Fair	
24	Ash	16.6	*	Fair	
25	Callery pear	15.9	*	Good	
26	Callery pear	12.7	*	Fair	
27	Callery pear	18.3	*	Good	
28	Ash	13.5	*	Poor	
29	Ash	15.7	*	Poor	
30	Ash	15.1	*	Poor	
31	Ash	16.2	*	Poor	
32	Ash	16.3	*	Poor	
33	Ash	14.1	2181	Poor	Under development
34	Ash	14.2	*	Poor	
35	Ash	11.4	2161	Dead	Developed
36	Ash	13.2	*	Fair	
37	Callery pear	13.3	*	Good	
38	Callery pear	14.8	*	Good	
39	Callery pear	17.4	*	Good	
40	Ash	17.7	2150	Fair	Undeveloped
41	Ash	17.3	*	Poor	
42	Ash	13.8	*	Fair	
43	Ash	18.6	*	Poor	
44	Ash	16	*	Fair	
45	Ash	17.5	*	Fair	

46	Ash	17.8	*	Poor	
47	Ash	18.3	*	Fair	
48	Ash	14.5	*	Fair	
49	Ash	14.9	*	Poor	
50	Callery pear	13.5	*	Fair	
51	Callery pear	11.1	*	Fair	
52	Callery pear	13.3	*	Fair	
53	Callery pear	12.8	2140E	Poor	Developed
54	Ash	14.6	*	Fair	
55	Ash	16.8	*	Fair	
56	Ash	15.5	*	Fair	
57	Ash	12.3	2130E	Fair	Undeveloped
58	Ash	13	*	Dead	
59	Ash	13.4	*	Fair	
60	Ash	14	*	Poor	
61	Ash	15.6	*	Fair	
Performed by: Jennifer Gulick					
Urban Canopy Works, LLC					
Certified Arborist #OH-0069 MA					
August 2018 and January 2019					
					

# APPENDIX C: REPLACEMENT TREE PLAN MAP



## APPENDIX D: REPLACEMENT TREE PLAN SPREADSHEET

<b>Waterford Homeowners Association Edenderry Drive Tree Replacement</b>					
<i>(Bromley-Crescent Springs Road to Obrien Place)</i>					
<b>Planting Site #</b>	<b>Species</b>	<b>Location</b>			
P1	Elm	2181			
P2	Serviceberry/redbud	*			
P3	Serviceberry/redbud	*			
P4	Elm	2161			
P5	Oak	*			
P6	London plane	*			
P7	Honeylocust	*			
P8	Serviceberry/redbud	*			
P9	Elm	*			
P10	Oak	2150			
P11	London plane	*			
P12	Honeylocust	*			
P13	Serviceberry/redbud	*			
P14	Elm	*			
P15	Oak	*			
P16	London plane	*			
P17	Honeylocust	*			
P18	Serviceberry/redbud	*			
P19	Elm	*			
P20	Oak	*			
P21	London plane	*			
P22	Honeylocust	*			
P23	Serviceberry/redbud	*			
P24	Elm	2140W			
P25	Oak	*			
P26	London plane	*			
P27	Honeylocust	*			
P28	Serviceberry/redbud	*			
P29	Elm	2130W			
P30	Oak	*			
P31	London plane	*			
P32	Honeylocust	*			
P33	Serviceberry/redbud	*			
P34	Elm	*			
P35	Elm	2090			
P36	Oak	*			
P37	London plane	*			
P38	Honeylocust	*			
P39	Serviceberry/redbud	*			
P40	Elm	2100			
P41	Oak	*			
P42	London plane	*			
P43	Honeylocust	*			
P44	Serviceberry/redbud	*			
P45	Elm	*			



## **APPENDIX E: RECOMMENDED NEW TREE MAINTENANCE TASK LIST**

### **YEAR 1**

#### **At Planting**

- Prune tree for codominant stems and broken or dead branches only
- Create a watering dish or berm at the edge of the root ball with the backfill
- Mulch a 4-foot diameter area under the tree; maximum of 3-inches deep with no mulch against the trunk of the tree
- Water thoroughly; 20 gallons per tree within eight hours of planting

#### **Summer Following Planting, from Leaf -On to Leaf-Off - Bi-weekly**

- Water 10 to 15 gallons per tree; applied at a rate less than 3 gallons per minute
- Note: Watering can be deferred if more than 1 inch of rainfall during that week

#### **Fall After Planting, After Leaf Fall (late October, early November)**

- Control weeds in mulched area

### **YEAR 2**

#### **Spring, Before Leaf Out (late March)**

- Remove any staking, and all wire, tags, and twine
- Control weeds in mulch bed
- Refresh mulch to 3 inches. Mulch should be rotting about 33% per year by volume. Each tree should require about 1-inch of fresh mulch
- Remove suckers, dead and broken branches

#### **Fall, After Leaf Fall (late October, early November)**

- Control weeds in mulch bed
- Inspect deer protection/fencing

### **YEAR 3**

#### **Spring, Before Leaf Out (late March)**

- Control weeds in mulch bed
- Refresh mulch to 3 inches
- Remove suckers, dead and broken branches

#### **Fall, After Leaf Fall (late October, early November)**

- Control weeds in mulch bed
- Inspect deer protection/fencing

## **YEAR 4**

### **Spring, Before Leaf Out (late March)**

- Control weeds in mulch bed
- Refresh mulch to 3 inches
- Begin structural pruning practices: prune to establish a central leader; prune lower branches so the crown of the tree generally comprises the upper 2/3rds of the tree; establish good branching structure and remove suckers, dead and broken branches

### **Fall, After Leaf Fall (Late October, early November)**

- Control weeds in mulch bed
- Inspect deer protection/fencing
- Fertilize, as necessary